

**REMARKS**

This is a full and timely response to the outstanding non-final Office Action mailed September 24, 2003. Claims 40-42 have been newly added. Support for newly amended claims 16, 24, and 33, and added claims 40-42 can be found in the specification, for example, on page 7, lines 11-22. Upon entry of this response, claims 16-42 remain pending in the present application.

In the Office Action, pending claims 18, 19, 22, 23, 28, 31, 32, 38, and 39 have been preliminarily rejected as failing to comply with the written description requirement, claims 16, 17, 19-22, 24-26, 28-31, 33, 34, and 36-38 have been preliminarily rejected for anticipation under 35 U.S.C. § 102 and claims 16-39 have been preliminarily rejected for obviousness under 35 U.S.C. § 103(a). New drawings have been required because the submitted Figure 8 contains a reference number not identified in the original specification. The Applicant traverses all of the rejections of the Office Action. Reconsideration and allowance of the subject application and presently pending claims 16-42 is respectfully requested.

**I. Response to Written Description Rejection**

In the Office Action, pending claims 18, 19, 22, 23, 28, 31, 32, 38, and 39 have been preliminarily rejected as failing to comply with 35 U.S.C.

Section 112, the written description requirement. Specifically, the Examiner states that claim 16 (as well as claims 24 and 33) was drawn to Figure 10.

The Examiner further states that the rejected claims, which depend from claims 16, 24 and 33, contain knife edges, threaded bores, and grooves not

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shown in Figure 10 and, therefore, contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. Applicant traverses this rejection.

The Applicant respectfully submits that the original specification teaches the application of knife edges, threaded bores, and grooves in Figure 10. Specifically, as an example, the first paragraph of the Detailed Description, on page 6, which is drawn to Figures 6-10, describes the application of mounting grooves and threaded bores in all of the flanges depicted in those figures. Further, while the above-mentioned rejected claims contain certain limitations depicted in Figure 10, Figures 7-10 were only examples of the present invention depicted with a variety of the narrower limitations. Nothing in Figure 10, or in the specification, taught or suggested that other inventive concepts disclosed in the specification could not be combined with or were not embodied by Figure 10. On the contrary, the Applicant made it clear at line 22 of page 10 that "the exemplary embodiments described and depicted in the accompanying drawings are for illustrative purposes only, and should not be interpreted as limitations." The Applicant respectfully submits that the claims rejected herein contained subject matter described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention. The Applicant

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respectfully requests that the Examiner withdraw the present rejection with regards to the aforementioned claims.

## II. Response To Claim Rejections Based On Anticipation

In the Office Action, claims 16, 17, 19-22, 24-26, 28-31, 33, 34, and 36-38 have been preliminarily rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,437,482 to Curtis (hereinafter "Curtis").

It is well established at law that, for a proper rejection of a claim under 35 U.S.C. § 102 as being anticipated by a cited reference, the cited reference must teach every element of the claim. See, in e.g., Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) and Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ 2d 1913, 1920 (Fed Cir. 1990).

### A. Claim 16

Independent claim 16, as currently amended, reads:

A thin flange for use with a vacuum system, comprising:  
     a single, thin, generally circular member having an inner diameter, an outer diameter, a first face having a sealing surface and an opposed, substantially parallel second face having a sealing surface;  
     an ***inner web*** formed substantially within a circumference of the inner diameter; and  
     a ***knife edge*** along the first face sealing surface and the second face sealing surface whereby a compressing force applied to the knife edges will engage the inner web with at least one soft metal member located therein.

***(Emphasis Added)***

The Applicant respectfully submits that Curtis fails to teach at least the above-emphasized elements of claim 16. The amended claim 16 now

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contains the limitation previously contained in claims 18, namely the "knife edge" limitation. The Examiner did not find claim 18 anticipated by Curtis, presumably, because Curtis does not teach a knife edge. As the amendment in the present response adds the knife edge limitation, the Applicant respectfully submits that this rejection has been overcome by amendment. Further, Applicant has amended claim 16 to include the above-emphasized limitation, "an inner web". Curtis does not teach an inner web, nor has the Examiner previously suggested that Curtis taught an inner web.

As a result of at least the above-mentioned amendments and arguments, the Applicant respectfully submits that claim 16 is allowable and allowance is respectfully requested.

**B. Claims 17 and 19-22**

The Applicant respectfully submits that since claims 17 and 19-22 depend on independent claim 16, claims 17 and 19-22 contain all limitations of independent claim 16. Since independent claim 16 should be allowed, as argued above, pending dependent claims 17 and 19-22 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

**C. Claim 24**

Independent claim 24 reads:

A vacuum component mounting system, comprising:

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a first flange having a first flange sealing surface and a first plurality of bolt holes extending therethrough, the bolt holes disposed in a first generally circular pattern,

a second flange having a second flange sealing surface and a second plurality of bolt holes extending therethrough, the bolt holes disposed in the first generally circular pattern; and

a single thin flange disposed between the first flange and the second flange, the thin flange comprising a generally circular member having in inner diameter, an outer diameter, a first face having a thin flange first sealing surface and an opposed, substantially parallel second face having a thin flange second sealing surface;

an **inner web** formed substantially within a circumference of the inner diameter;

a **knife edge** along the first face sealing surface and the second face sealing surface whereby a compressing force applied by the first flange and the second flange to the knife edges will engage the inner web with at least one soft metal member located therein; and

a third plurality of bolt holes extend from the first face to the second face, the third plurality of bolt holes arranged in the first generally circular pattern and extend from the first face to the second face.

**(Emphasis Added)**

The Applicant respectfully submits that Curtis fails to teach at least the above-emphasized elements of claim 24. The amended claim 24 now contains the limitation previously contained in claims 27, namely the “knife edge” limitation. The Examiner did not find claim 27 anticipated by Curtis, presumably, because Curtis does not teach a knife edge. As the amendment in the present response adds the knife edge limitation, the Applicant respectfully submits that this rejection has been overcome by amendment. Further, Applicant has amended claim 24 to include the above-emphasized limitation, “an inner web”. Curtis does not teach an inner web, nor has the Examiner previously suggested that Curtis taught an inner web.

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As a result of at least the above-mentioned amendments and arguments, the Applicant respectfully submits that claim 24 is allowable and allowance is respectfully requested.

**D. Claims 25, 26, and 28-31**

The Applicant respectfully submits that since claims 25, 26, and 28-31 depend on independent claim 24, claims 25, 26, and 28-31 contain all limitations of independent claim 24. Since independent claim 24 should be allowed, as argued above, pending dependent claims 25, 26, and 28-31 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

**E. Claim 33**

Independent claim 33 reads:

A thin flange for use with a vacuum system, comprising:  
     a single flange member having a first face having a sealing surface and an opposed, substantially parallel second face having a sealing surface, and;  
     an ***inner web*** formed substantially within a circumference of an inner diameter of the flange member whereby a compressing force applied to the sealing surfaces of the flange member will engage the inner web with at least one gasket located within the web.

***(Emphasis Added)***

The Applicant respectfully submits that Curtis fails to teach at least the above-emphasized element of claim 33. The amended claim 33 now includes the above-emphasized limitation, "an inner web". Curtis does not teach an inner web, nor has the Examiner previously suggested that Curtis

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taught an inner web. Therefore, Curtis fails to teach every element of claim 33.

As a result of at least the above-mentioned amendment and argument, the Applicant respectfully submits that claim 33 is allowable and allowance is respectfully requested.

**F. Claims 34 and 36-38**

The Applicant respectfully submits that since claims 34 and 36-38 depend on independent claim 33, claims 34 and 36-38 contain all limitations of independent claim 33. Since independent claim 33 should be allowed, as argued above, pending dependent claims 34 and 36-38 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

**III. Response To Claim Rejections Based On Obviousness**

In the Office Action, claims 16-39 have been preliminarily rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,593,123 to Crawford (hereinafter "Crawford '123") in view of U.S. Patent No. 5,671,956, also to Crawford (hereinafter "Crawford '956"). It is well established at law that, for a proper rejection of a claim under 35 U.S.C. §103 as being obvious based upon a combination of references, the cited combination of references must disclose, teach, or suggest, either implicitly or explicitly, all elements/features/steps of the claim at issue. See, e.g., In re

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Dow Chemical, 5 U.S.P.Q. 2d 1529, 1531 (Fed. Cir. 1988), and In re Keller, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981).

**A. Claim 16**

Independent claim 16, as currently amended, reads:

A thin flange for use with a vacuum system, comprising:  
    **a single, thin, generally circular member** having an inner diameter, an outer diameter, a first face having a sealing surface and an opposed, substantially parallel second face having a sealing surface;  
    an **inner web** formed substantially within a circumference of the inner diameter; and  
    a **knife edge** along the first face sealing surface and the second face sealing surface whereby a compressing force applied to the knife edges will engage the inner web with at least one soft metal member located therein.

***(Emphasis Added)***

The Applicant respectfully submits that Crawford '123 in view of Crawford '956 fails to disclose, teach, or suggest at least the above-emphasized element of claim 16. Neither Crawford reference discloses, teaches, or suggests a vacuum mating system in which a single flange possesses the emphasized features. The Crawford references teach a mating system having multiple flanges, the shortcomings of which are discussed in the background section of the specification (i.e., the first full paragraph on page 3 discusses the shortcomings of double-sided couplers, such as that taught in Crawford '956). The present application teaches that, by having a single flange with the claimed above-emphasized features, the flange can be constructed noticeably thinner than the devices disclosed in the

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Crawford references. The Applicant traverses the Examiner's rejection on this ground.

First, the Examiner acknowledges on page 3 of the Office Action that Crawford '123 does not teach a knife edge on two opposing surfaces of a single flange. Similarly, Crawford '956 fails to teach a knife edge on two opposing surfaces of a **single** flange. Crawford '956 teaches a knife edge on the outer surfaces of two flanges joined with a hollow extension tube. Both Crawford '123 and Crawford '956 fail to teach, disclose or suggest a knife edge on two opposing sides of a **single** flange.

Both Crawford references teach a system incorporating an inner web or something similar to it. However, both Crawford references teach a system having multiple flanges in the system joined with the inner web. Further, Crawford '123 teaches an inner web that covers only a small section of the inner diameter of the mounting assembly, resulting in asymmetric pressure applied to the web from the crushed gaskets. The present invention teaches a single flange with an inner web formed substantially within the circumference of the inner diameter. Both Crawford '123 and Crawford '956 fail to teach, disclose or suggest an inner web formed substantially within a circumference on the inner diameter of a single flange.

As a result of at least the above mentioned, the Applicant respectfully submits that claim 16 is allowable and allowance is respectfully requested.

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**B. Claims 17-23**

The Applicant respectfully submits that since claims 17-23 depend on independent claim 16, claims 17-23 contain all limitations of independent claim 16. Since independent claim 16 should be allowed, as argued above, pending dependent claims 17-23 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

**1. Claim 18**

In addition to the above-mentioned arguments, neither Crawford reference discloses, teaches, or suggests two sets of bolt holes in a single flange arranged in circular patterns with differing diameters. Crawford '123 teaches only a single set of bolt holes arranged through the mounting assembly, while Crawford '956 teaches two sets of bolt holes staggered around the same circular pattern. Neither Crawford reference discloses, teaches, or suggests two sets of bolt holes in a single flange arranged in circular patterns with differing diameters.

Therefore, the Applicant respectfully submits that claim 18 should be allowed.

**C. Claim 24**

Independent claim 24, as currently amended, reads:

A vacuum component mounting system, comprising:  
a first flange having a first flange sealing surface and a first plurality of bolt holes extending therethrough, the bolt holes disposed in a first generally circular pattern,

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a second flange having a second flange sealing surface and a second plurality of bolt holes extending therethrough, the bolt holes disposed in the first generally circular pattern; and

a single thin flange disposed between the first flange and the second flange, the thin flange comprising a generally circular member having in inner diameter, an outer diameter, a first face having a thin flange first sealing surface and an opposed, substantially parallel second face having a thin flange second sealing surface;

an *inner web* formed substantially within a circumference of the inner diameter;

a *knife edge* along the first face sealing surface and the second face sealing surface whereby a compressing force applied by the first flange and the second flange to the knife edges will engage the inner web with at least one soft metal member located therein; and

a third plurality of bolt holes extend from the first face to the second face, the third plurality of bolt holes arranged in the first generally circular pattern and extend from the first face to the second face.

**(Emphasis Added)**

The Applicant respectfully submits that Crawford '123 in view of Crawford '956 fails to disclose, teach, or suggest at least the above-emphasized element of claim 24. Neither Crawford reference discloses, teaches or suggests a vacuum mating system in which a single flange possesses the emphasized features. While the first and second flange actuate the thin flange, only the thin flange possesses the emphasized features. The Crawford references teach a mating system having multiple flanges, the shortcomings of which are discussed in the background section of the specification (i.e., the first full paragraph on page 3 discusses the shortcomings of double-sided couplers, such as that taught in Crawford '956). The present application teaches that, by having a single flange with the claimed above-emphasized features, the flange can be constructed

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noticeably thinner than the devices disclosed in the Crawford references.

The Applicant traverses the Examiner's rejection on this ground.

The Examiner acknowledges on page 3 of the Office Action that Crawford '123 does not teach a knife edge on two opposing surfaces of a single flange. Similarly, Crawford '956 fails to teach a knife edge on two opposing surfaces of a single flange. Crawford '956 teaches a knife edge on the outer surfaces of two flanges joined with a hollow extension tube. Both Crawford '123 and Crawford '956 fail to teach, disclose, or suggest a knife edge on two opposing sides of a single flange.

Both Crawford references teach a system incorporating an inner web or something similar to it. However, both Crawford references teach a system having multiple flanges in the system joined with the inner web. Further, Crawford '123 teaches an inner web that covers only a small section of the inner diameter of the mounting assembly, resulting in asymmetric pressure applied to the web from the crushed gaskets, which would damage a thin flange, much like the flanges shown in Figures 3 and 4. The present invention teaches a single flange with an inner web formed substantially within the circumference of the inner diameter. Both Crawford '123 and Crawford '956 fail to teach, disclose or suggest an inner web formed substantially within a circumference on the inner diameter of a single flange.

Further, neither Crawford reference discloses a thin flange between two thick flanges. The Examiner has previously suggested, including on page 2 of an Office Action dated 10/07/02, that Crawford '956 teaches a vacuum system having a flange between two thick flanges. Crawford '956 teaches a

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double-sided coupler having two flanges with an extension tube therebetween. Crawford '123 teaches a pair of parallel flange members with nothing identified therebetween. Neither Crawford reference teaches a thin flange between two thick flanges.

As a result of at least the above mentioned, the Applicant respectfully submits that claim 24 is allowable and allowance is respectfully requested.

**D. Claims 25-32**

The Applicant respectfully submits that since claims 25-32 depend on independent claim 24, claims 25-32 contain all limitations of independent claim 24. Since independent claim 24 should be allowed, as argued above, pending dependent claims 25-32 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

**1. Claim 27**

In addition to the above-mentioned argument, neither Crawford reference discloses, teaches, or suggests two sets of bolt holes in a single flange arranged in circular patterns with differing diameters. Crawford '123 teaches only a single set of bolt holes arranged through the mounting assembly, while Crawford '956 teaches two sets of bolt holes staggered around the same circular pattern. Neither Crawford reference discloses, teaches, or suggests two sets of bolt holes in a single flange arranged in circular patterns with differing diameters.

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Therefore, the Applicant respectfully submits that claim 27 should be allowed.

**E. Claim 33**

Independent claim 33, as amended, reads:

A thin flange for use with a vacuum system, comprising:

a ***single flange member*** having a first face having a sealing surface and an opposed, substantially parallel second face having a sealing surface, and;

an ***inner web*** formed substantially within a circumference of an inner diameter of the flange member whereby a compressing force applied to the sealing surfaces of the flange member will engage the inner web with at least one gasket located within the web.

***(Emphasis Added)***

The Applicant respectfully submits that Crawford '123 in view of Crawford '956 fails to disclose, teach, or suggest at least the inner web element of claim 33. Neither Crawford reference discloses, teaches, or suggests a vacuum mating system in which a single flange possesses the inner web, as claimed. The Crawford references teach a mating system having multiple flanges, the shortcomings of which are discussed in the background section of the specification (i.e., the first full paragraph on page 3 discusses the shortcomings of double-sided couplers, such as that taught in Crawford '956). The present application teaches that, by having a single flange with the claimed inner web, the flange can be constructed noticeably thinner than the devices disclosed in the Crawford references. The Applicant traverses the Examiner's rejection on this ground.

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Both Crawford references teach a system incorporating an inner web or something similar to it. However, both Crawford references teach a system having multiple flanges in the system joined with the inner web. Crawford '123 teaches an inner web that covers only a small section of the inner diameter of the mounting assembly, resulting in asymmetric pressure applied to the web from the crushed gaskets and is engaged with gaskets through a separate mechanical device. Crawford '956 teaches bolting together the two flanges to engage the gaskets with the web integral to the flanges. The present invention teaches a single flange with an inner web formed substantially within the circumference of the inner diameter engaged with the gaskets through compressive forces from external elements. Both Crawford '123 and Crawford '956 fail to teach, disclose or suggest an inner web formed substantially within a circumference on the inner diameter of a single flange.

As a result of at least the above mentioned, the Applicant respectfully submits that claim 33 is allowable and allowance is respectfully requested.

**B. Claims 34-39**

The Applicant respectfully submits that since claims 34-39 depend on independent claim 33, claims 34-39 contain all limitations of independent claim 33. Since independent claim 33 should be allowed, as argued above, pending dependent claims 34-39 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

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### 1. Claim 35

In addition to the above-mentioned argument, neither Crawford reference discloses, teaches, or suggests two sets of bolt holes in a single flange arranged in circular patterns with differing diameters. Crawford '123 teaches only a single set of bolt holes arranged through the mounting assembly, while Crawford '956 teaches two sets of bolt holes staggered around the same circular pattern. Neither Crawford reference discloses, teaches, or suggests two sets of bolt holes in a single flange arranged in circular patterns with differing diameters.

Therefore, the Applicant respectfully submits that claim 18 should be allowed.

### V. Newly Added Claims

Claims 40-42 have been added to better define the Applicant's invention. The Applicant believes that newly added claims 40-42 are patentable over the cited references.

#### A. Claim 40

A method of vacuum sealing, said method comprising the steps of:

positioning at least one gasket proximately within an inner web located at an inner diameter of a thin flange, said flange having a first sealing surface and an opposed, substantially parallel, second sealing surface;

**applying a compressive force to the first sealing surface and the second sealing surface; and**

crushing the gaskets, causing the gaskets to expand radially into the inner web, engaging the gaskets with the inner web.

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***(Emphasis Added)***

The Applicant respectfully submits that neither Curtis, nor the Crawford references teach the above-emphasized steps of the claimed inventive method. As previously discussed, Curtis fails to teach an inner web. Crawford '956 teaches applying a force to a single sealing surface (Col. 3, lines 22-25) to crush the gasket into the inner web. Crawford '123 teaches a set screw means of driving the inner web to engage the gaskets (Col. 2, lines 32-40). Neither Curtis, nor either of the Crawford references teach the above-claimed method of engaging the gaskets with the inner web.

As a result of at least the above mentioned, the Applicant respectfully submits that claim 40 is allowable and allowance is respectfully requested.

**B. Claims 41-42**

The Applicant respectfully submits that since claims 41-42 depend on independent claim 40, claims 41-42 contain all limitations of independent claim 40. Since independent claim 40 should be allowed, as argued above, pending dependent claims 41-42 should be allowed as a matter of law for at least this reason. In re Fine, 5 U.S.P.Q. 2d 1596, 1608 (Fed. Cir. 1988).

**1. Claim 41**

In addition to the above-mentioned argument, neither Crawford references teaches or suggests having knife edges on opposing sides of a single flange. First, the Examiner acknowledges on page 3 of the Office

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Action that Crawford '123 does not teach a knife edge on two opposing surfaces of a single flange. Similarly, Crawford '956 fails to teach a knife edge on two opposing surfaces of a single flange. Crawford '956 teaches a knife edge on the outer surfaces of two flanges joined with a hollow extension tube. Both Crawford '123 and Crawford '956 fail to teach, disclose or suggest a knife edge on two opposing sides of a single flange.

Therefore, the Applicant respectfully submits that claim 41 should be allowed.

## **2. Claim 42**

In addition to the above-mentioned argument, neither Crawford reference discloses a thin flange between two thick flanges. Examiner has previously suggested, including on page 2 of an office action dated 10/07/02, that Crawford '956 teaches a vacuum system having a flange between two thick flanges. Crawford '956 teaches a double-sided coupler having two flanges with an extension tube therebetween. Crawford '123 teaches a pair of parallel flange members with nothing identified therebetween. Neither Crawford reference teaches a thin flange between two thick flanges.

Therefore, the Applicant respectfully submits that claim 42 should be allowed.

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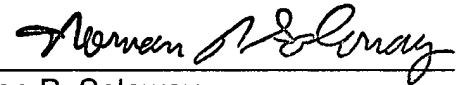
## **VI. Prior Art Made of Record**

The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

**CONCLUSION**

In light of the foregoing amendments and for at least the reasons set forth above, the Applicant respectfully submits that all objections and rejections have been traversed, rendered moot and/or accommodated, and that presently pending claims 16-42 are in condition for allowance. Favorable reconsideration and allowance of the present application and the presently pending claims are hereby courteously requested. If in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (603) 668-1400.

Respectfully submitted,



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